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Job No.: CTCE/BBMP/KN/W.No.13/WMM/Gradation/2023-24 21.10.2023

TEST REPORT ON GRADATION OF WET MIX MACADAM

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
Sample ID	:	Wet Mix Macadam
Test Method as per	:	IS - 2386 (part-1) : 1963 (RA-2021)
Date of Testing	:	21.10.2023
Report Issue Date	:	21.10.2023

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits As per Morth Table 400-13
53	0	0	0	100	100
45	155	155	3.1	96.90	95-100
22.4	1280	1435	28.70	71.30	60-80
11.2	1340	2775	55.50	44.50	40-60
4.75	755	3530	70.60	29.40	25-40
2.36	585	4115	82.30	17.70	15-30
0.600	390	4505	90.10	9.90	8-22
0.075	325	4830	96.60	3.40	0-5

*Information is furnished by the Customer/Representative.

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Note:

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⇒Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers

Pooja K.C

Authorised Signatory

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#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagara, Bangalore-79.

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Job No.: CTCE/BBMP/KN/W.No.13/WMM/AIV/2023-24 21.10.2023

TEST REPORT ON IMPACT VALUE OF AGGREGATE

*** Customer** : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

*** Agency** : **Sri.Kemparaju.N,**
Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.

*** Name of Work** : Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/DD/W.O/92/2023-24 Dated: 29.05.2023

*** Sample ID** : Wet Mix Macadam

Test Method as per : IS - 2386(Part -4) : 1963 (RA-2021)

Date of Testing : 21.10.2023

Report Issue Date : 21.10.2023

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	89	92	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	292	292	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	23.36	23.96	23.66

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Wet Mix Macadam is 30%

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Pooja K.L

Authorised Signatory

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Job No.: CTCE/BBMP/KN/W.No.13/WMM/Shape.T/2023-24 21.10.2023

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of Work**	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	:	Wet Mix Macadam
Test Method as per	:	IS - 2386(Part 1) : 1963 (RA 2021)
Date of Testing	:	21.10.2023
Report Issue Date	:	21.10.2023

Sl.No.	Description	Result
1	Flakiness Index	12.75%
2	Elongation Index	13.60%
3	Combined Flakiness & Elongation Index	26.35%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 35%

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CEMENT/2023-24 Date: 25.10.2023

TEST REPORT

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of Work**	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	:	Cement
Sample Received on	:	20.10.2023
Period of Testing	:	24.10.2023 to 25.10.2023
Report Issue Date	:	25.10.2023

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 269:2015 (2020)
1	Standard Consistency	IS-4031 (Part -4) : 1988 (RA-2019)	28.50%	-
2	a) Initial Setting Time	IS-4031 (Part -5) : 1988 (RA-2019)	170 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) : 1988 (RA-2019)	385 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) : 1988 (RA-2019)	1.00 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/SAND Gradation/2023-24 25.10.2023

TEST REPORT SIEVE ANALYSIS OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.

*** Agency** : **Sri.Kemparaju.N,**
Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.

*** Name of Work** : Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.

*** Reference** : EE/DD/W.O/92/2023-24 Dated: 29.05.2023

*** Sample ID** : Fine Aggregates (Manufactured Sand)

Test Method As Per : IS - 2386 (Part 1) : 1963 (RA-2021)

Sample Received On : 20.10.2023

Date of Testing : 25.10.2023

Report Issue Date : 25.10.2023

Total Wt. of Aggregates in gms = **1000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-2016			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	93.50	90-100	90-100	90-100	95-100
2.36	77.00	60-95	75-100	85-100	95-100
1.18	58.00	30-70	55-90	75-100	90-100
600 Micron	36.60	15-34	35-59	60-79	80-100
300 Micron	14.60	5-20	8-30	12-40	15-50
150 Micron	5.70	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-II specific limits.

Note 1 :
For crushed stone sands, the permissible limit on 150-micron IS Sieve is increased to 20 percent. This does not affect the 5 percent allowance permitted in 4.3 of IS 383 applying to other sieve sizes.

Note 2 :

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/AGG/GR/2023-24 25.10.2023

TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Coarse Aggregates (40mm)
Test Method As Per	:	IS - 2386 (Part 1) : 1963 (RA-2021)
Sample Received on	:	20.10.2023
Date of Testing	:	25.10.2023
Report Issue Date	:	25.10.2023

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS - 383 : 2016	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.90	95-100	85-100
20	39.10	30-70	0-20
10	12.70	10-35	0-5
4.75	2.74	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under graded specific limits.

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25.10.2023

TEST REPORT ON SIEVE ANALYSIS OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Coarse Aggregates (20mm)
Test Method As Per	:	IS - 2386 (Part 1) : 1963(RA-2021)
Sample Received on	:	20.10.2023
Date of Testing	:	25.10.2023
Report Issue Date	:	25.10.2023

Total Wt. of Aggregates in gms= **5000**

IS Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS - 383 : 2016	
		Graded	Single Sized
40	100	100	100
20	92.90	90-100	85-100
10	35.70	25-55	0-20
4.75	2.60	0-10	0-5

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24 27.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer**	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of the work**	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
*** Grade of Concrete**	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 27.11.2023
Report Issue Date	: 27.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.10.2023	27.11.2023	8.338	713.5	31.71
2	30.10.2023	27.11.2023	8.221	741.2	32.94
3	30.10.2023	27.11.2023	8.297	728.6	32.38

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

27.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
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* Reference	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 27.11.2023
Report Issue Date	: 27.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.10.2023	27.11.2023	8.423	729.5	32.42
2	30.10.2023	27.11.2023	8.339	741.2	32.94
3	30.10.2023	27.11.2023	8.307	717.8	31.90

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24 27.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer**	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
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*** Reference**	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
*** Grade of Concrete**	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 27.11.2023
Report Issue Date	: 27.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.10.2023	27.11.2023	8.298	709.3	31.52
2	30.10.2023	27.11.2023	8.342	741.4	32.95
3	30.10.2023	27.11.2023	8.385	727.3	32.32

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24 27.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer**	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of the work**	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
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Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
*** Grade of Concrete**	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 27.11.2023
Report Issue Date	: 27.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.10.2023	27.11.2023	8.354	733.8	32.61
2	30.10.2023	27.11.2023	8.265	737.9	32.80
3	30.10.2023	27.11.2023	8.192	722.3	32.10

*Information is furnished by the Customer/Representative.

Note:

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

27.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*** Customer**	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of the work**	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
*** Grade of Concrete**	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 27.11.2023
Report Issue Date	: 27.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	30.10.2023	27.11.2023	8.254	725.8	32.26
2	30.10.2023	27.11.2023	8.295	713.2	31.70
3	30.10.2023	27.11.2023	8.339	737.4	32.77

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

28.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of the work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Road Concrete
Technical Reference	:	IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{30}
Compressive Strength as on	:	28th day
Sample Received on	:	28.11.2023
Report Issue Date	:	28.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	31.10.2023	28.11.2023	8.355	738.3	32.81
2	31.10.2023	28.11.2023	8.276	727.2	32.32
3	31.10.2023	28.11.2023	8.205	713.3	31.70

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

28.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of the work	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 28.11.2023
Report Issue Date	: 28.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	31.10.2023	28.11.2023	8.216	738.3	32.81
2	31.10.2023	28.11.2023	8.198	707.8	31.46
3	31.10.2023	28.11.2023	8.342	722.2	32.10

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

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TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of the work	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 28.11.2023
Report Issue Date	: 28.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	31.10.2023	28.11.2023	8.265	721.9	32.08
2	31.10.2023	28.11.2023	8.383	713.8	31.72
3	31.10.2023	28.11.2023	8.402	735.3	32.68

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24 28.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of the work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Road Concrete
Technical Reference	:	IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	:	150mmx150mmx150mm
Cross Sectional Area	:	22500 mm^2
* Grade of Concrete	:	M_{30}
Compressive Strength as on	:	28th day
Sample Received on	:	28.11.2023
Report Issue Date	:	28.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	31.10.2023	28.11.2023	8.325	725.8	32.26
2	31.10.2023	28.11.2023	8.282	704.3	31.30
3	31.10.2023	28.11.2023	8.369	731.2	32.50

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Job No: CTCE/BBMP/KN/W.No.13/CSR-245/CUBE/2023-24

28.11.2023

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of the work	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	: Road Concrete
Technical Reference	: IS 516 : Part 1 : Sec 1 : 2021
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
* Grade of Concrete	: M_{30}
Compressive Strength as on	: 28th day
Sample Received on	: 28.11.2023
Report Issue Date	: 28.11.2023

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	31.10.2023	28.11.2023	8.345	711.9	31.64
2	31.10.2023	28.11.2023	8.308	725.8	32.26
3	31.10.2023	28.11.2023	8.412	730.4	32.46

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/QB(BM)/2023-24 26.10.2023

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	24.10.2023
Period of Testing	:	24.10.2023 to 26.10.2023
Report Issue Date	:	26.10.2023

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013 (RA-2018) for VG 30
1	Penetration at 25 °C, 1/10 mm	IS :1203 -1978 (RA-2019)	47	Min. 45
2	Softening point (R & B), °C	IS :1205 -1978 (RA-2019)	51	Min. 47
3	Ductility at 27°C, cm	IS :1208 -1978 (RA-2019)	>100	Min. 40
4	Flash Point, °C	IS :1209 -1978 (RA-2019)	280	Min. 220

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Job No: CTCE/BBMP/KN/W.No.13/BM/AIV/2023-24

26.10.2023

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Hot Mix Plant, Bangalore
Test Method as per	:	IS - 2386(Part -4) : 1963 (RA-2021)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	26.10.2023
Report Issue Date	:	26.10.2023

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	300	
4	Aggregate Impact value = percent fines 100* (W2/W1)%	21.41	22.08	21.74

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

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Job No.: CTCE/BBMP/KN/W.No.13/BM/Shape.T/2023-24

26.10.2023

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of Work**	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	:	Hot Mix Plant, Bangalore
Test Method as per	:	IS - 2386(Part -1) :1963 (RA-2021)
*** Type of Mix**	:	Bituminous Macadam
Date of Testing	:	26.10.2023
Report Issue Date	:	26.10.2023

Sl.No.	Description	Result
1	Flakiness Index	12.55%
2	Elongation Index	13.60%
3	Combined Flakiness & Elongation Index	26.15%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 35%

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Job No: CTCE/BBMP/KN/W.No.13/BM/Stripping/2023-24 28.10.2023

TEST REPORT ON STRIPPING VALUE OF ROAD AGGREGATE (STATIC IMMERSION TEST)

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of work**	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
Test Method as per	:	IS: 6241
*** Type of Mix**	:	Bituminous Macadam
Date of Testing	:	28.10.2023
Report Issue Date	:	28.10.2023

Type of binder	: V30
Percentage of binder used	: 5.0% by wt.
Total weight of aggregate	: 200 g
Total weight of binder	: 10.0 g
Temperature of water-bath	: 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.3		
3	3.2		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

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Job No: CTCE/BBMP/KN/W.No.13/BM/Sp_Wa/2023-24 28.10.2023

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
Test Method as per	:	IS - 2386(Part -3) : 1963 (RA-2021)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	28.10.2023
Report Issue Date	:	28.10.2023

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	W_1 g	2013	2015	2019	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1263	1265	1269	
4	Weight of saturated surface dry aggregate in air	W_3 g	2021	2020	2017	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	758	755	748	
6	Weight of oven dried aggregate	W_4 g	2005	2004	2003	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.645	2.654	2.678	2.661
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.702	2.712	2.729	2.716
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.80%	0.80%	0.70%	0.75%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note:

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Job No.: CTCE/BBMP/KN/W.No.13/BM/Bitumen/2023-24 28.10.2023

TEST REPORT ON BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Road Patch Work at Ravindra Nagar, Ward No.13, BBMP
Test Method as per	:	IRC:SP:11-1984
Date of Testing	:	28.10.2023
Report Issue Date	:	28.10.2023

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482.5	481.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17.5	18.50
7. Bitumen content in %	3.50	3.70
8. Average	**3.60**	

*Information is furnished by the Customer/Representative.

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Note:

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Þ The results indicated above are based on the tests carried out on the samples collected by the laboratory

Þ Any Query regarding the report must be reported within 30 days from date of testing.

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Job No.: CTCE/BBMP/KN/W.No.13/BM/Gradation/2023-24 28.10.2023

TEST REPORT ON GRADATION OF BITUMINOUS MACADAM MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Road Patch Work at Ravindra Nagar, Ward No.13, BBMP
Test Method as per	:	IS:2386 and IRC:SP:11-1984
Date of Testing	:	28.10.2023
Report Issue Date	:	28.10.2023

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-7 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0	100	100
19	30.8	6.38	6.38	93.62	90-100
13.2	85.2	17.66	24.04	75.96	56-88
4.75	254.2	52.68	76.73	23.27	16-36
2.36	56.5	11.71	88.44	11.56	4-19
0.3	27.9	5.78	94.22	5.78	2-10
0.075	8.5	1.76	95.98	4.02	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-7 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0.00	100	100
19	32.8	6.81	6.81	93.19	90-100
13.2	84.2	17.49	24.30	75.70	56-88
4.75	257.5	53.48	77.78	22.22	16-36
2.36	53.2	11.05	88.83	11.17	4-19
0.3	28.9	6.00	94.83	5.17	2-10
0.075	9.5	1.97	96.80	3.20	0-8

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Job No: CTCE/BBMP/KN/W.No.13/BM/Agg.G/2023-24 28.10.2023

TEST REPORT ON GRADATION OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Hot Mix Plant, Bangalore
Test Method as per	:	IS - 2386(Part -1) : 1963 (RA-2021)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	28.10.2023
Report Issue Date	:	28.10.2023

Total Weight of Sample: **5200** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-7 specification
19	385	7.40	7.40	92.60	90-100	
13.2	1630	31.35	38.75	61.25	56-88	
4.75	1580	30.38	69.13	30.87	16-36	
2.36	1165	22.40	91.54	8.46	4-19	
0.3	285	5.48	97.02	2.98	2-10	
0.075	90	1.73	98.75	1.25	0-8	

Total Weight of Sample: **5250** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade-II MORTH Table 500-7 specification
19	445	8.48	8.48	91.52	90-100	
13.2	1530	29.14	37.62	62.38	56-88	
4.75	1710	32.57	70.19	29.81	16-36	
2.36	930	17.71	87.90	12.10	4-19	
0.3	425	8.10	96.00	4.00	2-10	
0.075	75	1.43	97.43	2.57	0-8	

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Job No.: CTCE/BBMP/KN/W.No.13/CSR-245/QB(BC)/2023-24 31.10.2023

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	28.10.2023
Period of Testing	:	28.10.2023 to 31.10.2023
Report Issue Date	:	31.10.2023

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013 (RA-2018) for VG 30
1	Penetration at 25 °C, 1/10 mm	IS :1203 -1978 (RA-2019)	48	Min. 45
2	Softening point (R & B), °C	IS :1205 -1978 (RA-2019)	50	Min. 47
3	Ductility at 27°C, cm	IS :1208 -1978 (RA-2019)	>100	Min. 40
4	Flash Point, °C	IS :1209 -1978 (RA-2019)	290	Min. 220

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Job No: CTCE/BBMP/KN/W.No.13/BC/AIV/2023-24 31.10.2023

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* **Customer** : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* **Agency** : **Sri.Kempataju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* **Name of Work** : Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* **Reference** : EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* **Sample ID** : Hot mix plant, Bangalore.
* **Type of Mix** : Bituminous Concrete

Test Method as per : IS - 2386 (Part- 4) : 1963 (RA-2021)

Date of Testing : 31.10.2023

Report Issue Date : 31.10.2023

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	391	394	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	91	93	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	301	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	23.27	23.60	23.44

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KN/W.No.13/BC/Shape/T/2023-24 31.10.2023

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	: Hot mix plant, Bangalore
Test Method as per	: IS - 2386(Part -1) : 1963 (RA 2021)
* Type of Mix	: Bituminous Concrete
Date of Testing	: 31.10.2023
Report Issue Date	: 31.10.2023

Sl.No.	Description	Result
1	Flakiness Index	12.55%
2	Elongation Index	13.70%
3	Combined Flakiness & Elongation Index	26.25%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 35%

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Job No.: CTCE/BBMP/KN/W.No.13/BC/Stripping/2023-24 02.11.2023

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

*** Customer**	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of Work**	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
Test Method as per	:	IS: 6241
*** Type of Mix**	:	Bituminous Concrete
Date of Testing	:	02.11.2023
Report Issue Date	:	02.11.2023

Type of binder	: VG-30
Percentage of binder used	: 5.00% by wt.
Total weight of aggregate	: 200 g
Total weight of binder	: 10.00 g
Temperature of water-bath	: 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.4	3.30	96.70
2	3.2		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

Note:

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Job No.: CTCE/BBMP/KN/W.No.13/BC/Sp_Wa/2023-24 02.11.2023

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Hot mix plant, Bangalore
Test Method as per	:	IS - 2386(Part -3) : 1963 (RA-2021)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	02.11.2023
Report Issue Date	:	02.11.2023

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2002	2004	2001	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1247	1249	1246	
4	Weight of saturated surface dry aggregate in air	W_3 g	2028	2031	2029	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	781	782	783	
6	Weight of oven dried aggregate	W_4 g	2013	2014	2012	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.577	2.575	2.570	2.574
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.628	2.633	2.627	2.629
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.75%	0.84%	0.84%	0.81%

*Information is furnished by the Customer/Representative.

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Concrete is 2.0%

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Job No: CTCE/BBMP/KN/W.No.13/BC/Bitumen/2023-24 02.11.2023

TEST REPORT ON BITUMEN CONTENT OF BITUMINOUS CONCRETE MIX

*** Customer**	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
*** Agency**	: **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*** Name of Work**	: Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*** Reference**	: EE/DD/W.O/92/2023-24 Dated: 29.05.2023
*** Sample ID**	: Vishal School Road, Ravindra Nagara, Ward No.13, BBMP
Test Method as per	: IRC:SP:11-1984
Date of Testing	: 02.11.2023
Report Issue Date	: 02.11.2023

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	472.5	472
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	27.50	28.00
7. Bitumen content in %	5.50	5.60
8. Average	5.55	

*Information is furnished by the Customer/Representative.

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CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2015 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2017

Job No: CTCE/BBMP/KN/W.No.13/BC/Gradation/2023-24 02.11.2023

TEST REPORT ON BITUMEN CONTENT AFTER GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

* **Customer** : **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* **Agency** : **Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* **Name of Work** : Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* **Reference** : EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* **Sample ID** : Vishal School Road, Ravindra Nagara, Ward No.13, BBMP
Test Method as per : IS:2386 and IRC:SP:11-1984
Date of Testing : 02.11.2023
Report Issue Date : 02.11.2023

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-17 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	41.35	8.75	8.75	91.25	90-100
9.5	36.2	7.66	16.41	83.59	70-88
4.75	71.7	15.17	31.59	68.41	53-71
2.36	69.2	14.65	46.23	53.77	42-58
1.18	52.4	11.09	57.32	42.68	34-48
0.6	53.8	11.39	68.71	31.29	26-38
0.3	49.2	10.41	79.12	20.88	18-28
0.15	31.8	6.73	85.85	14.15	12-20
0.075	39.4	8.34	94.19	5.81	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-17 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.2	7.67	7.67	92.33	90-100
9.5	48.5	10.28	17.94	82.06	70-88
4.75	69.2	14.66	32.61	67.39	53-71
2.36	71.3	15.11	47.71	52.29	42-58
1.18	61.4	13.01	60.72	39.28	34-48
0.6	53.9	11.42	72.14	27.86	26-38
0.3	36.2	7.67	79.81	20.19	18-28
0.15	29.7	6.29	86.10	13.90	12-20
0.075	35.7	7.56	93.67	6.33	4-10

*Information is furnished by the Customer/Representative.

Note:

⇒The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing

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Job No.: CTCE/BBMP/KN/W.No.13/BC/Agg/2023-24 02.11.2023

TEST REPORT ON GRADATION OF AGGREGATE

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
* Name of Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Sample ID	:	Bituminous Concrete
Test Method as per	:	IS - 2386(Part -I) : 1963 (RA-2021)
* Type of Mix	:	Hot mix plant, Bangalore
Date of Testing	:	02.11.2023
Report Issue Date	:	02.11.2023

Total Weight of Sample: **5150** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per `MORTH 500-17
13.2	458	8.89	8.89	91.11	90 - 100	
9.5	632	12.27	21.17	78.83	70 - 88	
4.75	712	13.83	34.99	65.01	53 - 71	
2.36	635	12.33	47.32	52.68	42 - 58	
1.18	543	10.54	57.86	42.14	34 - 48	
0.600	585	11.36	69.22	30.78	26 - 38	
0.300	610	11.84	81.07	18.93	18 - 28	
0.150	324	6.29	87.36	12.64	12 - 20	
0.075	341	6.62	93.98	6.02	4 - 10	

Total Weight of Sample: **5200** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH 500-17
13.2	440	8.46	8.46	91.54	90 - 100	
9.5	535	10.29	18.75	81.25	70 - 88	
4.75	628	12.08	30.83	69.17	53 - 71	
2.36	635	12.21	43.04	56.96	42 - 58	
1.18	648	12.46	55.50	44.50	34 - 48	
0.600	530	10.19	65.69	34.31	26 - 38	
0.300	545	10.48	76.17	23.83	18 - 28	
0.150	390	7.50	83.67	16.33	12 - 20	
0.075	555	10.67	94.35	5.65	4 - 10	

*Information is furnished by the Customer/Representative.

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Job No : CTCE/BBMP/KN/W.No 13/BC/Stability/2023-24 02.11.2023

TEST REPORT ON MARSHALL STABILITY OF MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
* Agency	:	**Sri.Kemparaju.N,** Narasappa No.2148/A, 3rd Main Road, 5th Cross, Near Government PU College, RPC Layout, Hampinagar, Vijayanagara, Bangalore-560040.
*Name of the Work	:	Improvements to Concrete Roads at Ravindra Nagar in Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
*Reference	:	EE/DD/W.O/92/2023-24 Dated: 29.05.2023
* Source	:	Hot mix Plant, Bangalore
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	02.11.2023
Report Issue Date	:	02.11.2023

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-11)
1	Marshall Stability (Kn at 60°C)	9.50	9.60	9 Kn (min)
2	Marshall flow (mm)	2.55	3.30	2 – 4
3	Voids in Compacted Mix %	3.30	3.75	3 – 5
4	Percent voids in Mineral Aggregate (VMA)	13.35	13.70	Min 12
5	Percent Voids filled with Bitumen (VFB)	66.40	67.30	65 - 75
6	Density, g/cc	2.26	2.27	--

*Information is furnished by the Customer/Representative.

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